

Abstract of the Disclosure

An expandable venous valve having a support structure that configured to enlarge the area adjacent to the valve structure such that the flow patterns of retrograde flow are modified in a way that facilitates the flushing of the pockets at the base of the valve area to prevent stagnation of bodily fluid, which in the venous system, can lead to thrombus formation. The enlarged pocket areas can be created by forming an artificial sinus adjacent the valve structure in an unsupported section of vessel wall between two support frame section or the support frame can comprise an expanded-diameter intermediate or proximal section that forms an artificial sinus adjacent the valve structure. In another group of embodiments, the attachment pathway between opposing leaflets and the support frame and/or vessel wall comprises a proximal portion that places the leaflets in extended contact with one another and a distal portion forms a large angle with respect to the adjacent walls such that a large pocket is created at the base of the leaflets. In one embodiment, the attachment pathway extends distally along a pair of substantially parallel longitudinal attachment struts to create an extended leaflet contact area, then angles circumferentially and distally from the former along distal attachment struts to define the bottom edge of the leaflets.